

Ren-Chang CHING* & Kunio IWATSUKI**: **Annotations and corrigenda on the Sino-Japanese pteridophytes (1)**

秦 仁昌*・岩槻邦男**: 日本と中国で記録されたシダ植物の比較研究(1)

The ferns of China and Japan have fairly well been explored and the floras are being studied to some extent in both regions. However, the studies made so far have been carried out rather independently in each region, by Chinese botanists in China and by Japanese in Japan. Influenced by various circumstances, we could not have chance for frequent exchange of the information between Chinese and Japanese botanists in the past except from literature. For the purpose of promoting further progress in the floristic research in East Asia generally, it is deemed highly necessary to make closer comparison in detail between Chinese and Japanese plants, for which we need have closer collaboration in various ways between the botanists in China and Japan.

In this and the following articles, it is intended to review some species independently recognized, but nomenclaturally confused between our two countries. The intention of publishing a series of articles in this journal hereafter was actually initiated when the junior author visited Beijing in December, 1980, and had a chance to discuss the topics with the senior author and the other Chinese pteridologists. We are expecting to have many contributors to this series from both China and Japan. We are thankful to all the pteridologists in China and Japan for starting a variety of discussions with us. Without the accumulation of the great cooperative efforts by us all concerned, it would be impossible to clear up the mudles now existing in the floras of the two countries.

1) **Asplenium castaneo-viride** Baker, Ann. Bot. 5: 304. 1891.

Asplenium kobayashii Tagawa, Acta Phytotax. Geobot. 1: 309. 1932; Coll. Ill. Jap. Pterid. 149, 178. f. 333. 1959.

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China. Northeastern: Lushan in Talien, K. Kurita s.n. (Holotype of *A. kobayashii*, KYO), M. Kobayashi 4 (TI); Lingshui-si, M. Kobayashi s.n. (TI). Shantung: Tchefoo, Hancock 14 (Isotype of *A. castaneo-viride*, PE). Kiangsu: Yintaishan, Wang 75105 (PE).

Japan. Hokkaido: along the Tomarikawa, interior of Tomari, Shiribeshi, N. Naruhashi 2543 (KYO). Honshu: Pref. Gumma, Mt. Haruna, A. Kitazawa (TI), the Hirosegawa, Isezaki-shi, A. Kitazawa (TI); Pref. Tokyo, Nippara, Z. Endo (TI).

This is a hybrid between *Asplenium incisum* and *A. (Camptosorus) sibiricum*, and in every locality enumerated here occur the putative parent species. The cytological analysis was made for this hybrid by Lovis & Sleep in Lovis et al. (1972)¹⁾.

2) ***Asplenium yoshinagae*** Makino, Phan. Pter. Jap. Ic. Ill. 1: pl. 64. 1900; Ogata, Ic. Fil. Jap. 6: pl. 258. 1935; Ohwi, Fl. Jap. Pterid. 139. 1957; Tagawa & K. Iwats., Acta Phytotax. Geobot. 26: 172. 1975; K. Iwats., Univ. Mus. Univ. Tokyo Bull. 8: 195. 1975.—*Asplenium planicaule* var. *yoshinagae* (Makino) Tagawa, Acta Phytotax. Geobot. 14: 95. 1951; Col. Ill. Jap. Pterid. 151. 178. f. 339. 1959.

Asplenium planicaule Wall. ex Mett., Abhandl. Senckenb. Naturf. Ges. 3: 201. 1859, non Lowe 1858; Hook., Sp. Fil. 3: 163. t. 200B (1860); Bedd. Ferns S. Ind. 47. t. 139. 1864; Icon. Corm. Sin. 196. f. 391. 1972—*Asplenium indicum* Sledge, Bull. Brit. Mus. (Nat. Hist.) Bot. 3: 264. 1965; H. Ito in Hara, Fl. E. Himal. 487. 1966, 2nd List 214. 1971.

Asplenium laciniatum form. *viviparum* Wu ex Wu, Wong et Pong, Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. 3: 186. pl. 84. 1932.

The Japanese form named *A. yoshinagae* is generally distinguished in specific or varietal rank from Indian form in more delicate habit and usually gemmiferous rachis. Sledge (1965) intended to distinguish these two, but the junior author considered that these two were conspecific based on his research on Indian and Thai plants comparing with those in Japan. In southwestern part of China, this species is commonly distributed and has a wide range of variation especially in size of plants, gemmification, and in texture. These

1) Lovis, J.D., P.J. Brownsey, A. Sleep & M.G. Shivas. 1972. The origin of *Asplenium balearicum*. Brit. Fern Gaz. 10: 263-268.

are usually observed with the gemmae occurring at basal portion of rachis, though the form without gemmae is not very rare. The variation in occurrence of the gemmae is independent from that of texture and habit, i.e. the gemmae can not be found even in a delicate form in some cases. The pattern of variation in these features may stand as an evidence supporting the opinion that Indo-Himalayan form is identical with Japanese one including both forms in SW China even though the extreme forms of the Indian and Japanese plants may be distinguished by definition. Now, the range of distribution of this species includes: Réunion, Ceylon; S. India, Himalaya, Burma, Thailand, Indo-china, China (south of Yangtse River except in Kiangsu, NW to Kansu, and SE to Taiwan), Japan (Honshu west of Kanto, Kyushu, Shikoku), Philippines, and Borneo (Sabah).

We are not sure as yet whether the occurrence of the gemmae is influenced by any ecological factors or not.

3) *Asplenium normale* D. Don, Prodr. Fl. Nepal. 7. 1825; Ogata, Ic. Fil. Jap. 5: pl. 207. 1933; Tagawa, Coll. Ill. Jap. Pterid. 148, 178. f. 328. 1959; Icon. Corm. Sin. f. 385. 1972; Tagawa & K. Iwats., Acta Phytotax. Geobot. 29: 24. 1978.

Asplenium multijugum Wall. ex Mett., Abhandl. Senckenb. Naturf. Ges. 3: 179. 1859; Hook., Sp. Fil. 3: 139. t. 188A. 1860, cum var. α , t. 188B.

The commonest form of *A. normale* has a gemma on each rachis with no more elongation of rachis beyond that. The two varieties are distinguished in Japan by the different occurrence of the gemmae. *A. normale* var. *boreale* Ohwi ex Kurata, J. Geobot. (Kanazawa) 11: 100 (1963) is a form without any gemmae on rachis, or with a completely developed frond-apex. Hooker gave two varieties with line-drawings for both forms. He distinguished these two forms by the size of pinnae, but drew no gemmae in his larger form which was referred to *A. opacum* Kunze. This larger form coincides well with var. *boreale*. Recently, a number of observations on the habitat of the gemmiferous and non-gemmiferous forms of *A. normale* have been carried out in Japan, and it was elucidated that generally the non-gemmiferous form has shorter and oblong pinnae and usually forms a population distinct from gemmiferous form. The non-gemmiferous form is rarely found in Southeast Asia, but is not very rare in China: about a quarter of the specimens of *A. normale* are non-gemmiferous. A line-drawing given in Icon. Corm. Sin. for *A. normale* is a

non-gemmiferous form. We have as yet no detailed field observation on this feature in China, but the variation in morphological features suggests that the fact is the same as in Japan: we can even guess that the occurrence of the gemmae is influenced by ecological factors as moisture and/or edaphic conditions, though we have no evidence for it.

Another form named *A. normale* var. *shimurae* H. Ito, J. Jap. Bot. 47: 187. f. 1 (1972) for Japanese plants has more than one gemmae on one rachis, i.e. the development of rachis continues beyond the gemmiferous portion. The whole plants are more delicate and the axes are said to be easily broken. There are several specimens bearing this feature in India (Darjeeling, Gamble 52426, KYO), and Yunnan (Feng 8018 and China-USSR expedition 1956, PE), and more effort is to be made to find this form of *A. normale* to elucidate it from a taxonomic point of view.

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中国と日本との交流が円滑になって、両国の植物学者が実物を手にして意見の交換をしながら、これまでどちらかというとそれぞれの地域で別々に研究されてきた材料についての再検討を加えることが可能になってきた。これは、シダ植物についてのこの種の研究の第1報であるが、今後は共著者の2人に限らず、多くの研究者の協力を得てこの種の研究を発展させたい。

- 1) ヤマドリトロノオは山東省から報告されている *A. castaneo-viride* と同じもので、学名はより古いこれが使われることになる。既に中国のフロラでこの学名で広い意味で使われているが、タイプの検討も含めて再確認をした。
- 2) トキワシダは中国西南部に普通で、この地域で変異も大きい。インドのものと日本のものとを区別するかどうかは中国のものを含めた解析的な研究をしないと決められない。学名は、広義にみても、*A. yoshinagae* が正名となる。
- 3) スリトラノオの種内変異については野外の調査や細胞学的な観察によって大分よく分かってきたが、何分にも分布の広い多型種のことであり、命名上の取り扱いにも残されている問題が多い。出芽のし方については他の場合と比較しながら、もっと解析的な研究を要するテーマである。